14. REPORTS

14.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and an Equipment Status Report to the COTR. The Equipment Status Report shall be submitted until all items of equipment are disposed of. The Monthly Status report shall be presented in a tabular or spreadsheet format and must list the report number, the brand and manufacturer of the helmet, the model of the helmet, the date of receipt at the lab, the size of the helmet, the helmet coverage, date testing was started, the date testing was completed, the pass or fail status; for failures, state type of failure, e.g., peak-g, dwell time, penetration, retention, labeling, DOT-symbol, etc.

14.2 APPARENT NONCOMPLIANCE

Any indication of a test failure shall be communicated by telephone to the COTR within 1 working day and by email or fax within 2 working days. A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included. In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

14.3 FINAL TEST REPORTS

14.3.1 COPIES

In the case of a performance test failure (Impact, penetration or retention), **THREE** copies of the Final Test Report shall be submitted to and received by the COTR for acceptance within three weeks of test completion or received before the end of the fiscal year, whichever comes first. The Final Test Report format to be used by all contractors can be found in the attachment.

Where there has been no indication of a test failure, **TWO** copies of each Final Test Report shall be submitted to the COTR within three weeks of test completion or be received before the end of the fiscal year, whichever comes first. Payment of contractor's invoices for completed compliance tests may be withheld until the Final Test Report is accepted by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided copies of the Final Test Report.

Contractors are required to submit the first Final Test Report in draft form within two weeks after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to **PROOF READ** all Final Test Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

14. REPORTS....Continued

14.3.2 REQUIREMENTS

The Final Test Report, associated documentation (including photographs) are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use **detailed** descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much detail as possible in the report.

Instructions for the preparation of the first three pages of the final test report are provided below for the purpose of standardization.

14.3.3 FIRST THREE PAGES

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

(1) Final Report Number such as 218-ABC-XX-001, where —

218 is the FMVSS tested
ABC are the initials for the laboratory
XX is the last two digits of the Fiscal Year of the test program
001 is the Group Number (001 for the 1st test, 002 for the 2nd test, etc.)

(2) Final Report Title And Subtitle such as

SAFETY COMPLIANCE TESTING FOR FMVSS 218
Motorcycle Helmets
* * * * * * * * * * * * * * * * * *
Safety Equipment Company
(state the make and model of tested helmet)

(3) Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC.
4335 West Dearborn Street
Detroit, Michigan 48090

14. REPORTS....Continued

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

(4) Date of Final Report completion

(5) The words "FINAL REPORT"

(6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6111 (NVS-220)
Washington, DC 20590

14. REPORTS....Continued

B. FIRST PAGE AFTER FRONT COVER
A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: _____

Approved By: _____

Approval Date: _____

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: _____

14. REPORTS....Continued

C. SECOND PAGE AFTER FRONT COVER
A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 — REPORT NUMBER

218-ABC-XX-001

Block 2 — GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 — RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 — TITLE AND SUBTITLE

Final Report of FMVSS 218 Compliance Testing of (Helmet make, helmet model and part number)

Block 5 — REPORT DATE

(month, date and year) e.g. October 28, 2002

Block 6 — PERFORMING ORGANIZATION CODE

ABC (NHTSA's 3-digit alpha-code for test lab)

Block 7 — AUTHOR(S)

John Smith, Project Manager / Bill Doe, Project Engineer

Block 8 — PERFORMING ORGANIZATION REPORT NUMBER

(in testing lab's format if different from DOT report number)

Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070

14. REPORTS....Continued

Block 10 — WORK UNIT NUMBER

Leave blank

Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-03-D-12345

Block 12 — SPONSORING AGENCY NAME AND ADDRESS

US Department of Transportation
National Highway Traffic Safety Administration
Office of Vehicle Safety Compliance (NVS-220)
400 Seventh Street, SW, Room 6111
Washington, DC 20590

Block 13 — TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Mar. 15, 20XX

Block 14 — SPONSORING AGENCY CODE

NVS-220

Block 15 — SUPPLEMENTARY NOTES

Leave blank

Block 16 — ABSTRACT

Compliance tests were conducted on the subject (cite make and model of helmet tested) Motorcycle Helmet in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-218-XX for the determination of FMVSS 218 compliance. Test failures identified were as follows:

None

NOTE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR. If there is a failure, replace “None” with the paragraph of FMVSS 218 where the failure occurred and a brief statement of the failure.

14. REPORTS....Continued

Block 17 — KEY WORDS

Compliance Testing
Safety Engineering
FMVSS 218

Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from —

National Highway Traffic Safety Administration
Technical Reference Division
Room 5110 (NPO-230)
400 Seventh Street, SW
Washington, DC 20590
Telephone Number: 800-445-0197

Block 19 — SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 — SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 — NUMBER OF PAGES

Add appropriate number

Block 22 — PRICE

Leave blank

14. REPORTS....Continued

13.3.4 TABLE OF CONTENTS

Final test report Table of Contents shall include the following:

A. Section 1 — Purpose of Compliance Test

B. Section 2 — Compliance Test Data Summary

C. Section 3 — Test Data

D. Section 4 — Test Failure Details (if applicable)

E. Appendix A — Interpretations or Deviations From FMVSS 218

F. Appendix B — Test Equipment List and Calibration Information

G. Appendix C — Photographs

15. DATA SHEETS

DATA SHEET 1

HELMET DATA

HELMET MANUFACTURER: _____

HELMET MODEL DESIGNATION: _____

MONTH AND YEAR OF HELMET MANUFACTURE: _____

HELMET BRAND NAME: _____

HELMET SIZE: _____

HELMET COVERAGE: Partial - _____; Full - _____; Complete Facial _____

HELMET WEIGHT IN POUNDS: A - _____; B - _____; C - _____; D - _____

HELMET POSITIONING INDEX: _____ inches

	SHELL	LINER	CROWN PAD	RETENTION SYSTEM
MATERIAL				
COLOR/PATTERN				
BUCKLE FASTENER				

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 2

SUMMARY OF TEST RESULTS

REPORT NO.: _____ ; DATE: _____

INDICATE P - PASS OR F - FAIL

HELMET	A	B	C	D	COMMENTS
TEST	AMBIENT	LOW TEMP	HIGH TEMP	IMMERSED	
IMPACT					
PENETRATION					
RETENTION					

INDICATE P - PASS OR F - FAIL

TEST	PASS	FAIL
PERIPHERAL VISION		
PROJECTIONS		
LABELING		

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 3
SELECTION OF APPROPRIATE HEADFORM

REPORT NO.: _____ ; DATE: _____

Paragraph S6.1 - If the helmet size designation falls into more than one of three size ranges, it shall be tested on each appropriate headform.

HELMET SIZE DESIGNATION	HEADFORM SIZE
Less than or equal to 6-3/4 (European Size 54)	SMALL
Greater than 6-3/4, but less than or equal to 7-1/2 (European Size 60)	MEDIUM
Greater than 7-1/2 (European 60)	LARGE

COMMENTS:

CONDITIONING FOR TESTING — Paragraph S6.4 — The protective headgear shall be conditioned for not less than 12 hours, in the specified environmental condition shown below, prior to test.

Ambient Conditions	21°C ± 6° (70ºF ± 10ºF); 40% to 60% Rel. Humidity
Low Temperature	-10°C + 4°C, -0°C (14ºF, + 8ºF, - 0ºF)
High Temperature	50°C + 0°C, -4°C (122ºF, + 0ºF, - 8ºF)
Water Immersion	25°C ± 6°C (77ºF ± 10ºF)

The maximum time during which the protective headgear may be out of the conditioning environment shall not exceed 4 minutes. It must then be returned to the conditioned environment for a minimum of 3 minutes for each minute or portion of a minute in excess of 4 minutes out of the conditioning environment or 12 hours, whichever is less, prior to resumption of testing.

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 4

IMPACT

REPORT NO.: _____ ; DATE: _____

Paragraph S5.1 and S7.1

	ANVIL	HEIGHT
RIGID	Hemisphere	138.4cm, + 0cm, -1.3cm (54.5", + 0.0", - 0.5")
	Flat	182.9cm, +0cm, -1.3cm (72.0", + 0.0", - 0.5")

AMBIENT TEMP=__EF; RH=__%	
Headform Position Top Center	
Headform Size =	DROP ASSY WEIGHT

SYSTEMS CHECK	TRIAL DROP	DROP HEIGHT cm	VEL. m/sec	MILLISECONDS AT			TEST RECORD	GROUP NO.
				Peak G	150G	200G		
PRE-TEST	1						A	
	2						B	
	3						C	
PRETEST AVERAGE		XXXX	XXXX		XXX	XXX	XXXXX	XXXXX
POST TEST	1						D	
	2						E	
	3						F	
POST TEST AVERAGE		XXXX	XXXX		XXX	XXX	XXXXX	XXXXX
DIFFERENCE BETWEEN PRETEST AND POST TEST AVERAGES					PEAK G	DIFFERENCE NOT TO EXCEED 40 G's		

(Continued on next page)

15. DATA SHEETS....Continued

HELMET DESIG-NATION	HELMET CONDI-TION	Impact Loc.	Left Frt		Right Rr		Right Frt		Left Rr	
		Full Face/Other	Forehead		Leftside		Rightside		Rear	
		Impact Hit	1	2	1	2	1	2	1	2
A	LOW TEMP	ANVIL	HEMI		HEMI		FLAT		FLAT	
		TEST RECORD NO.	1	2	9	10	17	18	25	26
		PEAK G								
		MS @ 150G								
		MS @ 200G								
		VEL.-m/sec								
B	HIGH TEMP	ANVIL	HEMI		HEMI		FLAT		FLAT	
		TEST RECORD NO.	3	4	11	12	19	20	27	28
		PEAK G								
		MS @ 150G								
		MS @ 200G								
		VEL.-m/sec								
C	WATER IMMER-SED	ANVIL	HEMI		HEMI		FLAT		FLAT	
		TEST RECORD NO.	5	6	13	14	21	22	29	30
		PEAK G								
		MS @ 150G								
		MS @ 200G								
		VEL.-m/sec								
D	AMBI-ENT	ANVIL	HEMI		HEMI		FLAT		FLAT	
		TEST RECORD NO.	7	8	15	16	23	24	31	32
		PEAK G								
		MS @ 150G								
		MS @ 200G								
		VEL.-m/sec								

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 5

PENETRATION

REPORT NO.: _____ ; DATE: _____
Paragraph S5.2 and S7.2

WEIGHT OF STRIKER: 3 kg (6 pounds, 10 ounces)

POINT OF STRIKER: Radius = 0.508cm (0.20 inch), included angle of 60º, + 1.0º, - 0.0º, hardness minimum of 60 Rockwell "C" Scale and a cone height of not less than 3.81 cm (1.5 inches).

HEIGHT OF FALL: 300cm, + 0.0cm, - 3.05cm (118.1 inches, +0.0 inches, 1.2 inches), measured from the tip of the striker point to the outer surface of the mounted protective headgear.

FAILURE CRITERION: When tested, the protective headgear shall be failed if the penetrator has made an indentation in the headform.

TEST	HELMET	PASS	FAIL	CONDITIONS
1	A			AMBIENT
2	A			AMBIENT
3	B			LOW TEMPERATURE
4	B			LOW TEMPERATURE
5	C			HIGH TEMPERATURE
6	C			HIGH TEMPERATURE
7	D			WATER IMMERSED
8	D			WATER IMMERSED

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 6

RETENTION SYSTEM

REPORT NO.: _____ ; DATE: _____

Paragraph S5.3 and S7.3

AMBIENT TEMPERATURE:_____ ºC ; AMBIENT HUMIDITY: _____ %

REQUIREMENTS:

READING	APPLIED LOAD
INITIAL	22.68kg, + 4.54kg, - 0kg (50.0 LBS, + 10 LBS, - 0 LBS)
FINAL	136kg, + 0kg, - 2.3kg(300.0 LBS, + 0 LBS, - 5 LBS)

ELONGATION NOT TO EXCEED 2.54cm (1.0 INCH) AFTER LOAD INCREASE

HELMET	CONDITIONS	INITIAL READING cm (inch)	FINAL READING cm (inch)	ELONGATION Cm (inch)
A	AMBIENT			
B	LOW TEMPERATURE			
C	HIGH TEMPERATURE			
D	IMMERSED			

PERIPHERAL VISION - Paragraph S5.4 - Helmet shall provide a minimum peripheral vision of 105º to each side of the midsagittal plane. The brow opening shall be at least 2.54cm (1 inch) above all points in the basic plane that are within the angles of peripheral vision.

	REQUIREMENTS	TEST RESULTS
DEGREE EACH SIDE M.S. PLANE	> 105º	105º
BROW OPENING	> 2.54cm (1 inch)	2.54cm (1 inch)

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 7

PROJECTIONS

REPORT NO.: _____ ; DATE: _____

Paragraph S5.5 - REQUIREMENTS

PROJECTION TYPE	AVAILABILITY	HEIGHT
INTERNAL-RIGID	NONE	0.0mm (0.00 INCHES)
EXTERNAL-RIGID	OPERATIONAL	0.5mm MAXIMUM (0.20 INCHES MAXIMUM)

TEST RESULTS:

PROJECTION TYPE	AVAILABILITY	HEIGHT (mm)
INTERNAL - RIGID		
EXTERNAL - RIGID		

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 8
LABELING

REPORT NO.: _____ ; DATE: _____

Paragraph S5.6 - Each helmet shall be permanently legibly labeled, in a manner such that the label(s) can be easily read without removing padding or any other permanent part, with the following:

		PASS	FAIL
A.	Manufacturer's name or identification	_____	_____
B.	Precise model designation	_____	_____
C.	Size	_____	_____
D.	Month and year of manufacture	_____	_____

This may be spelled out (e.g., June 1974) or expressed in numerals (6/74)

E.	The symbol DOT	_____	_____

Constituting the manufacturer's certification that the helmet conforms to the Applicable Federal Motor Vehicle Safety Standards. This symbol shall appear on the outer surface, in a color that contrasts with the background, in letters at least 1cm (0.375 inch) high centered laterally with the horizontal centerline of the symbol located a minimum of 2.9cm (1.125 inches) and a maximum of 3.5cm (1.375 inches) from the bottom edge of the posterior portion of the helmet.

F. Instruction to the purchaser as follows - -

Shell and liner construction (identify type(s) of materials)	_____	_____
Helmet can be seriously damaged by some common substances without damage being visible to the user	_____	_____
Apply only the following - - Recommended cleaning agents, paints, adhesives, etc., as appropriate	_____	_____
Make no modifications	_____	_____

(Continued on next page)

15. DATA SHEETS....Continued

	PASS	FAIL
Fasten helmet securely	_____	_____
If helmet experiences a severe blow, return it to the manufacturer for inspection or destroy and replace it.	_____	_____

COMMENTS:

RECORDED BY: _____ ; DATE: _____

APPROVED BY: _____

TABLE 1A

MEDIUM HEADFORM - EXTERIOR DIMENSIONS

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Bottom Opening Z = -3.02			Level -5 Z= -2.900		
	R	X	Y	R	X	Y
0	4.292	4.292	0	4.293	4.293	0
10	4.266	4.201	0.741	4.270	4.205	0.742
20	4.159	3.908	1.423	4.172	3.920	1.427
30	3.967	3.436	1.984	3.961	3.430	1.981
40	3.660	2.804	2.353	3.670	2.811	2.359
50	3.332	2.142	2.553	3.352	2.155	2.568
60	3.039	1.520	2.632	3.067	1.534	2.656
70	2.839	0.971	2.668	2.869	0.981	2.696
80	2.720	0.472	2.679	2.772	0.481	2.730
90	2.675	0	2.675	2.709	0	2.709
100	2.703	-0.469	2.662	2.724	-0.473	2.683
110	2.764	-0.945	2.597	2.794	-0.956	2.626
120	2.888	-1.444	2.501	2.917	-1.459	2.526
130	2.985	-1.919	2.287	3.040	-1.954	2.329
140	3.100	-2.375	1.993	3.175	-2.432	2.041
150	3.175	-2.750	1.588	3.232	-2.799	1.616
160	3.186	-2.994	1.090	3.246	-3.050	1.110
170	3.177	-3.129	0.552	3.237	-3.188	0.562
180	3.187	-3.187	0	3.246	-3.246	0

TABLE 1B

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Basic Plane Z = -2.360			Level-4 Z= -2.000		
	R	X	Y	R	X	Y
0	4.272	4.272	0	4.247	4.247	0
10	4.248	4.184	0.738	4.223	4.159	0.733
20	4.147	3.897	1.418	4.120	3.872	1.409
30	3.961	3.430	1.981	3.940	3.412	1.970
40	3.687	2.824	2.370	3.683	2.821	2.367
50	3.384	2.175	2.592	3.392	2.180	2.598
60	3.111	1.556	2.694	3.132	1.566	2.712
70	2.927	1.001	2.751	2.960	1.012	2.782
80	2.815	0.489	2.772	2.860	0.497	2.817
90	2.779	0	2.779	2.838	0	2.838
100	2.802	-0.487	2.759	2.861	-0.497	2.818
110	2.887	-0.987	2.713	2.958	-1.012	2.780
120	3.019	-1.510	2.615	3.098	-1.549	2.683
130	3.180	-2.044	2.436	3.260	-2.096	2.497
140	3.306	-2.533	2.125	3.405	-2.608	2.189
150	3.398	-2.943	1.699	3.516	-3.045	1.758
160	3.458	-3.250	1.183	3.585	-3.369	1.226
170	3.475	-3.422	0.603	3.612	-3.557	0.627
180	3.472	-3.472	0	3.609	-3.609	0

TABLE 1C

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level -3 Z= -1.500			Level -2 Z= -1.000		
	R	X	Y	R	X	Y
0	4.208	4.208	0	4.148	4.148	0
10	4.179	4.116	0.726	4.112	4.050	0.714
20	4.075	3.829	1.394	4.013	3.771	1.373
30	3.902	3.379	1.951	3.844	3.329	1.922
40	3.654	2.799	2.349	3.609	2.765	2.320
50	3.377	2.171	2.587	3.352	2.155	2.568
60	3.094	1.547	2.680	3.137	1.569	2.717
70	2.982	1.020	2.802	2.989	1.022	2.809
80	2.891	0.502	2.847	2.902	0.504	2.858
90	2.876	0	2.876	2.884	0	2.884
100	2.918	-0.507	2.874	2.943	-0.511	2.898
110	3.021	-1.033	2.839	3.052	-1.044	2.868
120	3.170	-1.585	2.745	3.225	-1.613	2.793
130	3.337	-2.145	2.556	3.397	-2.184	2.602
140	3.483	-2.668	2.239	3.536	-2.709	2.273
150	3.604	-3.121	1.802	3.657	-3.167	1.829
160	3.682	-3.460	1.259	3.751	-3.525	1.283
170	3.725	-3.668	0.647	3.807	-3.749	0.661
180	3.741	-3.741	0	3.822	-3.822	0

TABLE 1D

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level -1 Z = -0.500			Reference Plane Z = 0.0		
	R	X	Y	R	X	Y
0	4.067	4.067	0	3.971	3.971	0
10	4.033	3.972	0.700	3.935	3.875	0.683
20	3.944	3.706	1.349	3.853	3.621	1.318
30	3.777	3.271	1.889	3.701	3.205	1.851
40	3.552	2.721	2.283	3.491	2.674	2.244
50	3.323	2.136	2.546	3.279	2.108	2.512
60	3.126	1.563	2.707	3.101	1.551	2.686
70	2.987	1.022	2.807	2.979	1.019	2.799
80	2.912	0.506	2.868	2.910	0.505	2.866
90	2.893	0	2.893	2.890	0	2.890
100	2.895	-0.503	2.851	2.945	-0.511	2.900
110	3.064	-1.048	2.879	3.062	-1.047	2.877
120	3.231	-1.616	2.798	3.228	-1.614	2.796
130	3.411	-2.193	2.613	3.413	-2.194	2.615
140	3.560	-2.727	2.288	3.563	-2.729	2.290
150	3.682	-3.189	1.841	3.681	-3.188	1.841
160	3.783	-3.555	1.294	3.773	-3.546	1.290
170	3.885	-3.826	0.675	3.832	-3.774	0.665
180	3.857	-3.857	0	3.844	-3.844	0

TABLE 1E

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level +1 Z = 0.500			Level +2 Z= 1.000		
	R	X	Y	R	X	Y
0	3.830	3.830	0	3.665	3.665	0
10	3.801	3.743	0.660	3.613	3.558	0.627
20	3.725	3.500	1.274	3.554	3.340	1.216
30	3.587	3.106	1.794	3.436	2.976	1.718
40	3.399	2.604	2.185	3.271	2.506	2.103
50	3.205	2.060	2.455	3.102	1.994	2.376
60	3.044	1.522	2.636	2.959	1.480	2.563
70	2.927	1.001	2.751	2.854	0.976	2.682
80	2.861	0.497	2.818	2.792	0.485	2.750
90	2.855	0	2.855	2.783	0	2.783
100	2.897	-0.503	2.853	2.832	-0.492	2.789
110	3.007	-1.029	2.826	2.938	-1.005	2.761
120	3.176	-1.588	2.751	3.102	-1.551	2.686
130	3.372	-2.168	2.583	3.294	-2.117	2.523
140	3.520	-2.697	2.263	3.450	-2.643	2.218
150	3.643	-3.155	1.822	3.564	-3.087	1.782
160	3.728	-3.503	1.275	3.637	-3.418	1.244
170	3.777	-3.720	0.656	3.675	-3.619	0.638
180	3.782	-3.782	0	3.670	-3.670	0

TABLE 1F

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level +3 Z = 1.450			Level +4 Z= 1.860		
	R	X	Y	R	X	Y
0	3.419	3.419	0	3.061	3.061	0
10	3.382	3.331	0.587	3.035	2.989	0.527
20	3.299	3.100	1.128	2.966	2.787	1.014
30	3.197	2.769	1.599	2.872	2.487	1.436
40	3.052	2.338	1.962	2.754	2.110	1.770
50	2.911	1.871	2.230	2.642	1.698	2.024
60	2.786	1.393	2.413	2.522	1.261	2.184
70	2.700	0.924	2.537	2.477	0.847	2.328
80	2.647	0.460	2.607	2.442	0.424	2.405
90	2.636	0	2.636	2.442	0	2.442
100	2.691	-0.467	2.650	2.492	-0.433	2.454
110	2.796	-0.956	2.627	2.599	-0.889	2.442
120	2.961	-1.481	2.564	2.758	-1.379	2.389
130	3.147	-2.023	2.411	2.936	-1.887	2.249
140	3.301	-2.529	2.122	3.081	-2.360	1.980
150	3.408	-2.951	1.704	3.176	-2.751	1.588
160	3.479	-3.269	1.190	3.230	-3.035	1.105
170	3.514	-3.461	0.610	3.270	-3.220	0.568
180	3.502	-3.502	0	3.271	-3.271	0

TABLE 1G

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level +5 Z=2.250			Level +6 Z= 2.560		
	R	X	Y	R	X	Y
0	2.526	2.526	0	1.798	1.798	0
10	2.521	2.483	0.483	1.798	1.771	0.312
20	2.464	2.315	0.843	1.757	1.651	0.601
30	2.387	2.067	1.194	1.719	1.489	0.860
40	2.305	1.766	1.482	1.678	1.285	1.079
50	2.232	1.435	1.710	1.652	1.062	1.266
60	2.174	1.087	1.883	1.641	0.821	1.421
70	2.144	0.733	2.015	1.645	0.563	1.546
80	2.132	0.370	2.100	1.673	0.291	1.648
90	2.147	0	2.147	1.712	0	1.712
100	2.213	-0.384	2.179	1.809	-0.314	1.782
110	2.316	-0.792	2.176	1.925	-0.658	1.809
120	2.463	-1.232	2.133	2.066	-1.033	1.789
130	2.624	-1.687	2.010	2.213	-1.423	1.695
140	2.763	-2.117	1.776	2.358	-1.806	1.516
150	2.863	-2.479	1.432	2.469	-2.138	1.235
160	2.919	-2.743	0.988	2.536	-2.383	0.867
170	2.954	-2.909	0.513	2.561	-2.522	0.445
180	2.958	-2.958	0	2.556	-2.556	0

TABLE 1H

MEDIUM HEADFORM - EXTERIOR DIMENSIONS (Continued)

All X and Y numbers are in inches; to convert to centimeters, multiply each figure by 2.54.

I	Level +7 Z=2.750		
	R	X	Y
0	1.081	1.081	0
10	1.088	1.072	0.189
20	1.055	0.991	0.361
30	1.039	0.900	0.520
40	1.039	0.796	0.668
50	1.052	0.676	0.806
60	1.068	0.534	0.925
70	1.106	0.378	1.039
80	1.171	0.203	1.153
90	1.242	0	1.242
100	1.422	-0.247	1.400
110	1.489	-0.509	1.399
120	1.683	-0.842	1.458
130	1.801	-1.158	1.380
140	1.954	-1.497	1.256
150	2.083	-1.804	1.042
160	2.138	-2.009	0.731
170	2.175	-2.142	0.378
180	2.175	-2.175	0

NOTES:

1. Apex is located at (-0.75, 0, 3.02) for (X,Y,Z) or (0.75, 180, 3.02) for (R, Θ,Z).

2. Center of ear opening is located at (0.40, 2.78, - 2.36) for (X,Y,Z) or (2.80, 81.8, - 2.36) for (R, Θ,Z).

3. Scale all dimensions by 0.8941 for small headform.

4. Scale all dimensions by 1.069 for large headform.

5. Headform is symmetrical about the mid-sagittal plane.

6. Units: R,X,Y,Z – inches
Θ – degrees

7. To obtain metric equivalents in centimeters multiply each figure by 2.54.

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS No.	**218**	**Contract Number**	
Date(s) of Failure		**Fiscal Year**	
Report Number		**Helmet Coverage**	Partial, Full or Comp Facial
Manufacturer		**Brand**	
Model		**Part Number**	
Helmet Size		**Date of Manufacture**	

Failure Reported By	

Test Failure Description	
para/reqt	**Statement of failure and results**
Performance S5. ___	
Labeling S5.___	
Other S5.___	

Remarks

Notification to NHTSA	**COTR:**	
Date		**By:**

APPENDIX A
INTERPRETATIONS OR DEVIATIONS FROM FMVSS 218

APPENDIX B

EQUIPMENT LIST AND CALIBRATION SCHEDULES

APPENDIX C

PHOTOGRAPHS